

Practical ichthyology

Bacterial Fish Diseases

1-Tail rot syndrome or Fin rot:

This disease causes destroyed of the fins, the disease is also called Tail Rot because it affect the posterior region of fish body and cause erosion of peduncle fin. Fin Rot, is one of the most common and preventable bacterial fish diseases in aquarium and pond fish. Typically, this disease starts around the edges of the fin and gradually destroys more tissue until it reaches the base of the fin.

Causative Agent:

There are 3 theories for the cause of this disease:

- 1- *Pseudomonas* and *Aeromonas* spp.
- 2- The two bacterial type with other type of bacteria called *Myxobacteria*.
- 3- The disease may combined with other bacterial disease and a fungal species may be combined with it.

Epidemiology:

The disease is distributed in the pond by direct contact of infected fish to the normal or non infected fish and the water contamination can also play a role in distribution of the disease.

Clinical and Pathological Lesions:

White line appear in the lateral edge of the fins then the base of the fins which will appear like a cooked one in last stage of the disease and then lose of the affected completely.





Diagnosis:

By the clinical and pathological lesions and bacterial isolation.

Treatment:

1-Oxytetracycline bath, 20 mg/ L .

2-copper sulphate .

2-Red Spot Disease of Grass and Black Carp

Some time may called Hemorrhagic Septicemia because of septicemia signs of the disease. The disease is called also Ulcerative Disease due to the skin ulceration on body.

Causative Agent :

Pseudomonas fluorescens migola

Clinical and Pathological Lesions :

The hemorrhagic form characterized by erosion and sloughing of the scales specially on the belly region, hemorrhagic spots on the fins and around the mouth. The ulcerative form characterized by skin inflammation and abscess which contain pus then open and cause ulcers.

The fish loss its appetite and their weight.



Diagnosis:

By the clinical and pathological lesions and bacterial isolation.

Treatment:-

oxytetracycline 3-6 mg / fish

3-white skin disease of Sliver and Big Head Carp:-

This disease cause mortality after 2-3 days of the infection or the appearance of the symptoms. occur usually at May or August ,fishes are susceptible less than one year old fish.

Causative agent:

Pseudomonas dermoalba

Clinical signs

- 1-Present white mucous like material layer which covering the skin.
- 2-The white fish color of skin began from the region between the dorsal and the tail then between the dorsal and anal fin and the fish left its tail at in swim.



Diagnosis:

Clinical signs and isolation of the causative organism.

Treatment:

- 1- Euromycine 12 – 5 mg / liter for 1/2 hour.
- 2- Chloride 1mg / liter.

4-Bacterial gills disease

It's a chronic to acute disease, affect primarily cultured and aquaria fishes. Disease characterized by respiratory impairment.

Causative agent:

Gills disease is caused by several agents:

- 1-Myxobacteria (*flavobacterium branchiophilum*) in combination with unfavorable environmental conditions.
- 2- Chemical pollution or pesticides with secondary mycotic infection (Haemorrhagic gills disease).

Stress factors:

1. Low oxygen content.
2. High turbidity of water.
3. High ammonia in water.
4. Change in pH of water.
5. Over stocking in fish farm.
6. Malnutrition of fish.
7. Mechanical injuries of the skin or gills

Susceptible species:

disease has been found in most parts of the world where fish are cultured. Salmonids, carp, goldfish, catfish, eel and other fishes are susceptible to take the infection.

Clinical signs:

1-Fish remain near the water surface and often line up against the water inlet.

2-Gills may be swollen and congested, which results in their appearance deep red than normal.

3-Signs of bacterial gill disease are white to gray spots on the gills.





This disease depends on many factors. Morbidity rate is high and may reach 100% of a population under crowded conditions. Mortality rate in overcrowded fish populations may be 25% to 30%.

Treatment and control:

1. Treatment and control depend on the etiology of the disease.
2. Stress factors must be removed.
3. Good management of the fish farm.
4. External disinfectants are used for treatment such as potassium permanganate 100mg/l for 30 seconds.
5. Antibiotics are used for treatment of bacterial gill disease.

5-Columnaris Disease

Columnaris is considered as a widely distributed disease of fresh-water fish. The disease is also called Cotton Wool Disease; it may be acute or chronic disease according to water temperature and bacterial virulence.

Causative Agent

Flexobacter columnaris G- negative aerobic bacilli. is slender, filamentous gram negative rod motile by gliding mechanism; preference for aerobic conditions colonizing gills and skin ;prevalent at temperatures >20°C.

Epidemiology

Disease outbreak usually occur at temperature is excess of 18C but highly virulent strains may require less duration in temperature rises to produce sever infection. The incubation period is very short 1-2 days and the infection transmitted by direct contact between the infected and the normal fish. So the overcrowding and rose of temperature to 20C play a role in the infection.

Clinical signs

Lesion are usually confined to the skin of the head and back and the gills although other parts of the body may also be involved. They begin as raised whitish plaques with a reddish zone of hyperemia around the periphery. On the gills the lesions are often more necrotic and death more rapid, also Swelling of the posterior kidney may be observed.

Treatment

- 1- Potassium Permanganate 2 mg/L / 4hours.
- 2- Cupper Sulfate 20 minute.
- 3- Oxytetracycline 8-10 gm/100 kg of body weight for 10 days.

6- Bacterial Enteritis of Grass and Black Carp:

It is a wide distribution disease of 1-2 years old fish, its mortality may reach 90%.

Causative Agent:

G - bacilli which called *Pseudomonas fluorescence intestinalis*.

Clinical signs

Swelling and hemorrhage on anus Release clotted blood mixed with yellowish mucoid material from anus when press on abdomen, Loss of appetites, the swim bladder is dark to black in color and accumulation of fluid in the abdominal cavity, hemorrhagic enteritis.

Diagnosis:

The pathological lesions and bacterial isolation.

Treatment

Sulfa quindain 1 gm / 10 kg food in the first day then 0.5mg / 10 kg food for 10 day later.

7-Vibriosis

Vibriosis is one of the most prevalent fish diseases caused by bacteria belonging the genus *Vibrio* affecting many marine and fresh water fishes. The disease characterized by septicemia, dermal ulceration, ascitis and haematopiotic necrosis.

Causative agent:

The most important etiological agent of vibriosis is *V. anguillarum*, is Gram negative, rod-shaped bacterium either curved or straight, motile, non capsulated. The organism does not produce pigment. It grows rapidly at 25-30C in rich media such as brain-heart or trypticase soy broth containing 1.5% NaCl. *Vibrio* spp. is able to survive in sea water more than 50 months. On solid medium, it produces circular, cream-coloured colonies.

Clinical signs:

1. The course of the infection is rapid and most of the infected fish die without showing any clinical signs.
2. Anorexia, darkening of the skin and sudden death in young fish.
3. There is abdominal distension, anemia and dermal hemorrhages.
4. Red spots found on the ventral and lateral areas of infected fishes.
5. Congestion and swelling of the spleen, liver and kidney.
6. There is intestinal hyperemia together with clear viscous fluid within the intestinal tract.



Treatment and control:

1. Oxytetracycline: 3-5gm/100kg of fish/day for 10 days.
2. Furazolidone in feed: 100mg/kg/fish/6days.

8-Furunculosis:

Furunculosis is an acute, subacute, chronic or latent disease, primarily among salmonid fishes characterized by formation of furuncle or boil-like lesions in various tissues of the body.

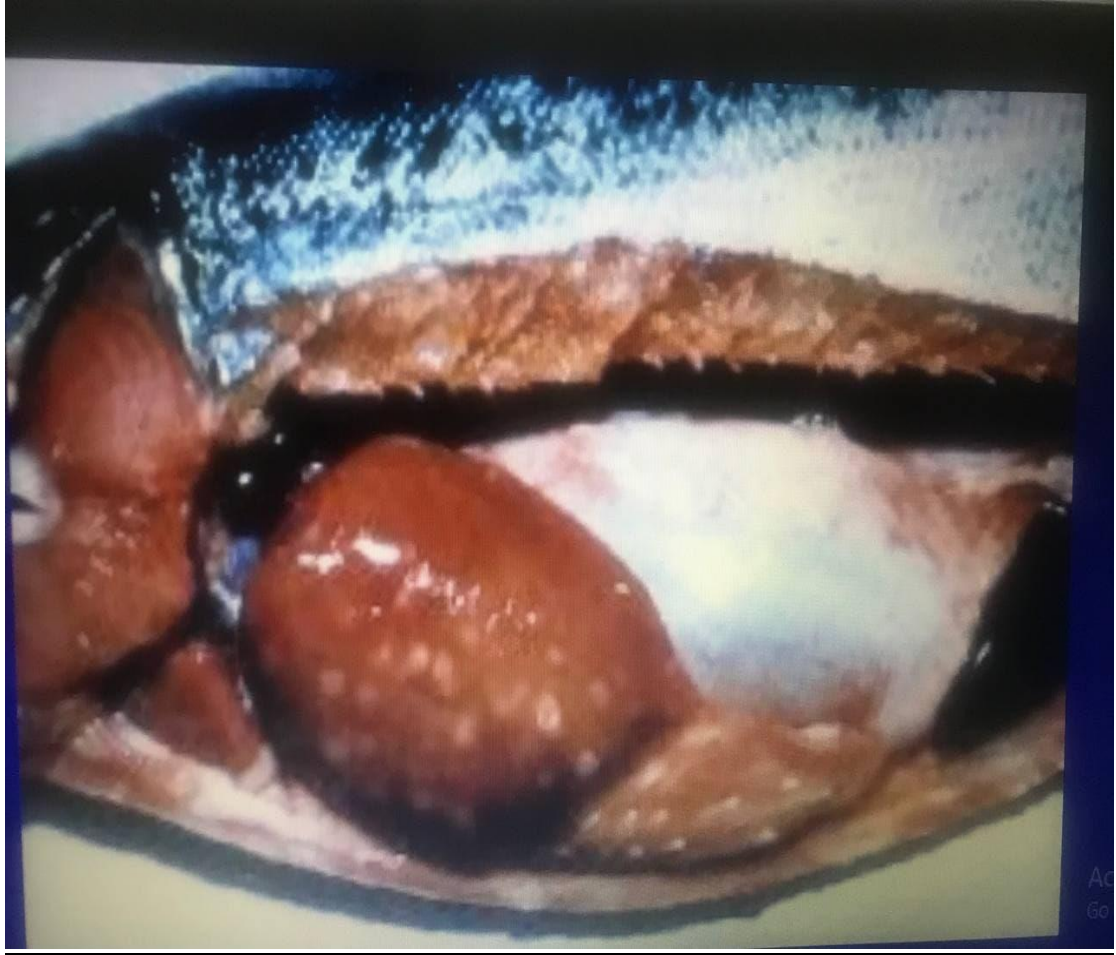
Causative agent and Susceptible species:

The disease is caused by gram-negative, short bacilli called *Aeromonas salmonicida*, which is classified into two strains.

1. Typical *A. salmonicida*, isolated from salmonids only.
2. Atypical *A. salmonicida*, isolated from salmonids & non salmonids species, such as carp, catfish, and other fish species. Young fish are more susceptible to the disease than old fish.

Clinical Signs:-

- 1-Hemorrhage at the base of fins & oral cavity.
- 2-Inter hemorrhage may be evident in the abdominal walls , viscera & heart of affected fish.
- 3-The spleen is enlarged and the liver can have sub capsular hemorrhages.
- 4- The reproductive organs are commonly hemorrhaged & the intestine is often severely congested.
- 5-Present the ulcers which may extend deep into the musculature.
- 6- Present the hemorrhages on the liver & the kidneys are soft or friable.



Treatment:

1. Sulfamerazine: 150-220 mg/kg fish weight/day for 10-14 days.
2. Oxytetracycline: 50-75 mg/kg fish weight/day for 10 days.
3. Furazolidone: 25-100 mg/kg fish weight/day for 10 days.